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CLAIMS:

What is claimed is:

1. A method in a data processing system for processing instructions, the method comprising:

responsive to receiving an instruction at a processor in the data processing system, determining whether an indicator is associated with the instruction; and

counting events associated with execution of the instruction and subsequent instructions if the indicator is associated with the instruction.

2. The method of claim 1, wherein the counting step comprises:

sending a signal to a performance monitor unit in the processor in response to determining that the indicator is associated with the instruction; and

counting the events associated with execution of the instruction and subsequent instructions using the performance monitor unit.

3. The method of claim 1, wherein an event includes at least one of an event includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, starting of input/output, completion of input/output, execution of the instruction, and time needed to execute the instruction.

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4. The method of claim 1 further comprising:

receiving another instruction after receipt of the instruction, wherein the another instruction is associated with the indicator; and

halting counting of the events associated with the execution of the instruction and subsequent instructions in response to receiving the another instruction associated with the indicator.

5. The method of claim 1, wherein the indicator is a first type of indicator and further comprising:

receiving another instruction after receipt of the instruction, wherein the another instruction is associated with a second type of indicator; and

halting counting of the events associated with the execution of the instruction and subsequent instructions in response to receiving the another instruction associated with the second type of indicator.

6. The method of claim 1, wherein the instruction and the subsequent instructions are received in an instruction cache and wherein the counting step comprises:

sending a signal to a performance monitor unit from an instruction cache to cause the performance monitor unit to count events associated with the execution of the instruction and subsequent instructions; and

counting events associated with execution of the instruction and subsequent instructions using the

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performance monitor unit in response to receiving the signal from the instruction cache.

7. The method of claim 1, wherein the indicator is located in a field in the instruction.

8. The method of claim 1, wherein the indicator associated with the instruction is located in a shadow memory.

9. The method of claim 1, wherein the instruction is received in a bundle and wherein the indicator comprises at least one spare bit in the bundle.

10. The method of claim 1, wherein the indicator is located in a shadow cache.

11. The method of claim 1, wherein an event in the events includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, starting of input/output, completion of input/output, and the execution of the instruction.

12. A method in a data processing system for monitoring access to data, the method comprising:

responsive to receiving data at a processor in the data processing system, determining whether an indicator is associated with the data; and

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counting events associated with accesses to the data if the indicator is associated with the instruction.

13. The method of claim 12 further comprising:

halting counting of events associated with accesses to the data when the indicator is associated with the data is encountered a second time.

14. The method of claim 12 further comprising:

halting counting of events associated with accesses to the data when a different indicator associated with the data is encountered.

15. The method of claim 12, wherein the indicator is associated is located in a field in a data address location for the data.

16. The method of claim 12, wherein the data is in one of a memory location or a range of memory locations.

17. The method of claim 12, wherein an event in the events includes at least one of the access to the memory location.

18. A data processing system comprising:

a performance monitor unit, wherein the performance monitor unit counts events for an instruction and subsequent instructions when a signal is received; and

an instruction cache, wherein the instruction cache receives instructions and sends the signal to the

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performance monitor unit to count the events associated the instruction and with subsequent instructions when the instruction is associated with an indicator.

19. A data processing system for processing instructions, the data processing system comprising:

determining means, responsive to an instruction at a processor in the data processing system, for determining whether an indicator is associated with the instruction; and

counting means for counting events associated with execution of the instruction and subsequent instructions if the indicator is associated with the instruction.

20. The data processing system of claim 19, wherein the counting means is a first counting means and further comprises:

sending means for sending a signal to a performance monitor unit in the processor in response to determining that the indicator is associated with the instruction; and

second counting means for counting the events associated with execution of the instruction and subsequent instructions using the performance monitor unit.

21. The data processing system of claim 19, wherein an event includes at least one of an event includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an

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entry into a function, starting of input/output, completion of input/output, execution of the instruction, and time needed to execute the instruction.

22. A data processing system for monitoring access to data, the data processing system comprising:

determining means, responsive to receiving data at a processor in the data processing system, for determining whether an indicator is associated with the data; and

counting means for counting events associated with accesses to the data if the indicator is associated with the instruction.

23. The data processing system of claim 22, wherein an event in the events includes at least one of the access to the memory location.

24. A computer program product in a computer readable medium for processing instructions, the computer program product comprising:

first instructions, responsive to receiving an instruction at a processor in the data processing system, for determining whether an indicator is associated with the instruction; and

second instructions for counting events associated with execution of the instruction and subsequent instructions if the indicator is associated with the instruction.

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25. The computer program product of claim 24, wherein an event in the events includes at least one of the access to the memory location.